

DAIRY AND POULTRY.

INTERESTING CHAPTERS FOR OUR RURAL READERS.

How Successful Farmers Operate This Department of the Farm—A Few Hints as to the Care of Live Stock and Poultry.



BEARD'S Dairyman says: There is more dairy literature floating around in the news papers than ever before in the history of this country. Some of it is good and much of it worse than nothing, for it is based on exploded ideas. The following twenty-three points we find in a daily paper, evidently culled from some other source, so we do not know to whom to give credit. In the main they are good suggestions:

SELECTION AND BREEDING.

1. Select the best cows in your herd, or that you can buy, to keep, and dispose of the others.
2. The best cow for the dairy is the one that produces the greatest amount of butter fat in a year (for food consumed) when being rightly fed.
3. Test your cows by weighing the milk of each cow for a year and testing it occasionally with the Babcock milk tester, and know how much butter fat each one does produce.
4. To renew or increase your herd raise the heifer calves from your best cows.

5. Use the best dairy-bred sire you can get; one, if possible, that has a long line of ancestors and have been first-class dairy animals.
6. In this way you can make each generation better than the preceding one, if they have at all times proper care and feed.

7. It is neither profitable nor necessary for a cow to go dry more than four to six weeks.
8. Especially should your young cows be watched and not allowed to acquire the habit of drying up too soon.
9. Darken the stable in which the cows are milked through fly time. It will not only economize the patience of the milker, but the cost of milk production as well.

10. Keep a record of the time when cows are bred, and have no guess work about the time of calving.
11. Provide a roomy box stall, and allow the cow to become accustomed to it a week prior to calving.
12. Rich foods should be withheld for a short time prior and subsequent to calving.
13. The udder should receive prompt attention. An obstacle may be removed from the teat the first hour that might baffle science later.

14. A pail of scalded bran should be given to the cow as soon as possible after calving.
15. The calf should be permitted to nurse its mother for two or three days.
16. After separating the calf from its mother, feed the natural milk as soon as drawn, for a week or ten days.

17. Then begin gradually to substitute skim milk with oil meal jelly stirred into it.
18. Scald the calf's feed pail daily.
19. Feed three times a day and not more than three quarts at a time until the calf is well started.

20. Warm the milk by placing the vessel that contains the milk in hot water.
21. Warm the milk in 90 degrees Fahrenheit.
22. Don't trust your finger, but a thermometer. It will save many a calf's life.

23. The man whose ideal of a cow is high, coupled with good care, feed and gentleness, is sure to receive the highest profit in milk and pleasure that can be made in dairying.

We will add a couple of other points:

24. Always clean out the box stall after a cow has calved therein, and thoroughly disinfect it with a solution made of one part of sulphuric acid to nine of water. This is to prevent septic poisoning of the next cow, which may easily occur.
25. Do not milk the udder out clean until the four day after calving. This will often prevent a chill, which often produces milk fever.

Chicken Roosts.

A great many of our farmers seem to think that a hen will do as well with a poor roost as a good one, if I may judge from my own observation, says a writer in an exchange. The style of roost that seems so scientific and economical to the general class of farmers is that of the step or stair style—one roost back and above the other. The lower pole is very close to the floor, while the upper one is, generally, as near or nearer the roof or ceiling. It saves space, of course, but you are always sure to find the lower pole nearly empty, while the upper one is crowded full. Often the fowls crowd one another off with fatal effects. Some argue that fowl wish to roost high, therefore the roosts should all be high to satisfy their desires. It is true that fowls wish to roost high, but it is an inherited habit handed down from the fowl in its natural state. They wish to roost high to keep from danger. If your house is kept well closed there is no need of high and dangerous roosts. I place my roost poles on a level and about eighteen inches above the floor. This is in the part of the room where the air is the purest. The impure air rises to the ceiling and some gases fall close to the floor; this style of roost avoids both, as well as prevents injury to fowls jumping down from the roosts. For roosting poles I use a 3x3-inch scantling, rounded on one

edge so as to fit the feet of the fowls. I place them on trestles with suitable notches in them, with the rounded edge up. Keep the roosts clean, and by placing oil or tar on the bottoms of them you will be without lice. A good coat of whitewash is also good to keep away the pests. The diseases caused by high roosts are mainly bumle-foot and lameness, but other diseases have their origin from them.

Effects of Getting Wet.

Mr. W. P. Alkin, Graham, Texas, was unfortunate in having some four months old chicks get wet, the result being that they have been sick ever since. He states to the Poultry Keeper the details in a letter below:

"I have a flock of fourteen Black Minorcas about four months old. We had a rain about one month ago and they all got wet and stayed wet all night. In a few days I noticed a viscid mucousy blubber on their nostrils. They do not have any canker in their mouths or throat, but the roof of the mouth seems inflamed. I have been using coal oil, turpentine and carbolic acid, with a medicine dropper, in the nose and throat, but they do not improve very fast. Can you recommend anything to put in the feed? Will they be fit for breeders if they get well? They look perfectly well and hearty. If you did not look close and see the trash sticking on their beaks you would not suspicion anything being the matter with them. I have four roosters in the flock and they seem worse than the pullets. I used peroxide of hydrogen on them yesterday. Do you think that good for them?"

The Journal mentioned comments as follows: We do not know of anything more injurious to four months' old chicks than to become soaking and remain so. If they had gotten wet during the day and had the warmth of the sun, it might have been different, but to remain wet all night means that they were chilled through. It is a surprise that they did not die in a few days. The treatment is correct but laborious, and as the climate of Texas is mild they may recover. If they make a complete recovery they can be used for breeding. The best remedy is to add a teaspoonful of chlorate of potash to each quart of drinking water, and repeat the peroxide of hydrogen occasionally.

Look at That Bull.

Prof. Sheldon, the eminent English authority on dairying, speaks his mind on the vicious practice of using scrubby, low grade bulls, as follows:

"Look, for instance, at the weedy, miserable bulls that many farmers are content to use in their herds—wretched quadrupeds that should never be allowed to live beyond the age of veal. Some men say, by way of excuse, 'My poverty, not my will, consents'; yet, on the other hand, it may be remarked that no man can really afford to use inferior, low valued bulls in his herd. That any man should continue to do so year after year can only be regarded as a kind of heedless infatuation which precludes all hope of improvement. 'The bull is half the herd,' is an axiom which should be drilled into the mind of every farmer's son who is himself to be a dairy farmer—drilled in until he fully realizes what it means. That there are many of the present generation of farmers who do not half comprehend the vast importance of this is greatly to be feared, for it is plainly enough to be seen in the inferior sires that are kept for stock purposes. It would be interesting to hear the answers such men would give to the following questions: What sort of stock do you expect such a bull will get? or, Do you really expect to pay your way as a farmer by using a bull like that? or, What would you say if you saw another man burdened with a similar load of crass stupidity? Unfortunately, it never occurs to them to put such questions to themselves, and it is too commonly nobody's business to do so in their default. There is no excuse nowadays for a man who uses scrubby bulls among his cows. Plenty of well descended bulls are to be had at prices within the reach of any man who can afford to keep cattle at all."

Essentials of a Dairy Farm.

A United States Agricultural Department bulletin makes the following summary of what is essential in the successful operation of a dairy farm:

A roomy, clean, dry, light and well ventilated stable or cow house. To produce good milk, cows must be comfortable, and these conditions not only add to their comfort, but are absolutely necessary to keep them in the best of health.

Healthy and clean cows, which appear well fed and contented.

An abundance of pure water to which cows are given access at least twice a day.

Feed of good quality, the grain and coarse fodder should be free from dirt, decay or a musty condition.

A spirit of kindness towards the stock, exhibited by every one employed about them, and gentleness of the animals themselves.

Provision for washing and sterilizing or scalding of utensils which come in contact with milk.

Provision for straining, aerating and cooling the milk in a clean atmosphere, free from all stable and other odors.

This treatment should take place immediately after the milk is drawn from each cow.

Facilities for storing milk and keeping it cold.

Especially great cleanliness in regard to everything connected with the dairy. The atmosphere of the stable should be pure and free from dust when milking is being done. Employees should carefully wipe the udders and wash their hands before milking, and should be in clean clothes. Whitewash is a good disinfectant, and should be seen in many more stables, and land plaster should be sprinkled about to absorb moisture and odors.

A Progress of Selection Necessary.

On the properly developed sheep, a pound of mutton can be produced as cheaply as can a pound of beef on the average steer, and it will sell for as many cents. If the cattle grower can fatten his steer with some profit, I believe the flock owner can do as well with the sheep, and have in his favor the advantage of one or more fleeces, while bringing his animal to maturity. But it cannot be done with scrub animals, no matter how fashionable their breeding, how high sounding their pedigree, it can only be done with sheep growing the most desirable fleeces on well developed and rapidly maturing carcasses. And this is true of the entire flock; they must all be good. The history of those lean and valueless animals of ancient Egypt that devoured their well fattened contemporaries, is not the only instance of disaster attending the mingling of worthless and superior stock. The same thing has been repeated in Merino flocks, so far as profits are concerned, ever since sheep husbandry has been pursued with a view to profit. If Merino husbandry is to progress and become as permanently profitable as any other well conducted business, the work of eliminating inferior animals cannot too soon begin. Let them go into market just as soon as they can be put into reasonably fair condition. They may not make very good mutton, but they are better for that than anything else. They are to progressive husbandry of the future what the stage coach of our boyhood days would be to the transportation demands of the present time. They may have had a place in the past, but to-day and hereafter they are but clogs upon the wheels of progress, and must be cast aside. It has frequently been urged that there are not many farmers who might not make a small flock of sheep profitable. This, I believe, to be true; and as the fact becomes more generally recognized, the tendency will be to increase both the number of flocks and the number of sheep throughout the country. Heretofore when sheep husbandry has been referred to, our minds have usually reverted to those partially settled localities where flocks are made up of thousands. There will be less reason for this each year, as the logic of events is certain to diminish the extent of ranges, and popularize smaller flocks among farmers.

In this transition the Merino is destined to be an important factor. It offers an unrivaled base for crosses by larger bodied types, where such a course is found desirable. No other breed is so cosmopolitan. It will thrive where any other breed will get a living, and will live under privations where few others could exist. No other sheep will so certainly and so rapidly improve the fleeces of breeds with which they may be crossed; and under suitable conditions, such crosses will in no wise detract from the merits of carcass. With this hasty survey of the situation, it may be concluded that a progressive Merino sheep husbandry is the only one that is likely to survive against the pressure of low prices and increasing competition. The flock owner, who is not ready and determined to take a long stride in advance of the standards and policies which obtained in the past, is already out of the race, and the sooner he comes to realize the fact the better. The procession of men who are to achieve success is now moving, and those who feel themselves unable to keep step with the quickening march are to be left by the wayside. The system that will hereafter succeed will necessarily leave behind some of the men, many of the animals and many of the practices of the past. —A. M. Garland.

Treatment of Frosted Combs.

When a bird becomes frosted on the comb (frozen comb), the remedy is to keep it in some place where the wind cannot reach it, says Farm and Fireside. Fapceter project such tail-comb breeds as Leghorns by placing choice specimens in a barrel at night, having a block of wood in a barrel for a roost. The first thing to do is to swab the injured comb with glycerine. The next day the comb should be anointed with an ointment composed of equal parts of ichthylol and lanoline, which should be repeated every day. Healing is a slow process, and only relief from pain can be afforded, as the comb may slough off entirely. It is an advantage to keep a fowl which has been frosted and healed, as it will be less liable to be injured the succeeding winter.

Fed Too Much Corn.

Visiting a poultry farm lately, says Maine Farmer, a number of hens were seen squatting on the ground, unable to walk. Naturally the owner asked: "What is the cause of the trouble?" In seeking a solution, the question of feed was raised, and the man stated frankly: "I feed on corn, because it is so handy to use and so cheap in the market." Here was the cause of all his troubles. He was feeding a grain not adapted to bone and muscle building, and the little body could not stand the strain. Rational feeding would save from these annoyances.

Hand-Raised Calf.—By proper care and management the calf raised by hand will develop just as rapidly as if it had run with the cow, and it is very certain that it will cost much less. Do not let it run with the cow at all. Feed at the start with new milk only, and feed often; never let it over-load its stomach.—Ex.

A better method of getting apples to the people in the cities is needed. While apples were selling at ten cents a bushel on the farm last fall, they were retelling in the Chicago groceries for 80 cents or more a bushel.

W. D. Hoard says that the progress of dairy knowledge among the farmers is so slow that sometimes it seems like trying to fertilize a million acres of land with the breadth of a beaver.

TALMAGE'S SERMON.

"SUFFER FOR OTHERS" LAST SUNDAY'S SUBJECT.

From the Text: "Without Shedding of Blood There is No Remission of Sin"—Hebrews, Chapter IX Verse 22—A Sacrifice That is Practiced by Very Few Voluntarily.



JOHN G. WHITTIER, the last of the great school of American poets that made the last quarter of a century brilliant, asked me in the White Mountains one morning after prayers, in which I had given out Cowper's famous hymn about "The Fountain Filled with Blood," "Do you really believe there is a literal application of the blood of Christ to the soul?" My negative reply then is my negative reply now. The Bible statement agrees with all physicians, and all physiologists, and all scientists, in saying that the blood is the life, and in the Christian religion it means simply that Christ's life was given for our life. Hence all this talk of men who say the Bible story of blood is disgusting, and that they don't want what they call a "slaughter house religion," only shows their incapacity or unwillingness to look through the figure of speech to ward the thing signified. The blood that, on the darkest Friday the world ever saw, oozed, or trickled, or poured from the brow, and the side, and the hands, and the feet of the illustrious sufferer, back of Jerusalem, in a few hours congealed and dried up, and forever disappeared; and if men had depended on the application of the literal blood of Christ, there would not have been a soul saved for the last eighteen centuries.

In order to understand this red word of my text, we only have to exercise as much common sense in religion as we do in everything else. Pang for pang, hunger for hunger, fatigue for fatigue, tear for tear, blood for blood, life for life, we see every day illustrated. The act of substitution is no novelty, although I hear men talk as though the idea of Christ's suffering substituted for our suffering were something abnormal, something distressingly odd, something wildly eccentric, a solitary episode in the world's history; when I could take you out in this city, and before sundown point you to five hundred cases of substitution and voluntary suffering of one in behalf of another.

At 2 o'clock tomorrow afternoon go among the places of business or toil. It will be no difficult thing for you to find men who, by their looks, show you that they are overworked. They are prematurely old. They are hastening rapidly toward their decease. They have gone through crises in business that shattered their nervous system and pulled on the brain. They have a shortness of breath and a pain in the back of the head, and at night an insomnia that alarms them. Why are they drugging at business early and late? For fun? No; it would be difficult to extract any amusement out of that exhaustion. Because they are avaricious? In many cases no. Because their own personal expenses are lavish? No; a few hundred dollars would meet all their wants. The simple fact is, the man is enduring all that fatigue and exasperation, and wear and tear, to keep his home prosperous. There is an invisible line reaching from that store, from that bank, from that shop, from that scaffolding, to a quiet scene a few blocks away, a few miles away, and there is the secret of that business endurance. He is simply the champion of a homestead, for which he wins bread, and wardrobe, and education, and prosperity, and in such battle ten thousand men fall. Of ten business men whom I bury, nine die of overwork for others. Some sudden disease finds them with no power of resistance, and they are gone. Life for life. Blood for blood. Substitution!

At 1 o'clock tomorrow morning, the hour when slumber is most uninterrupted and most profound, walk amid the dwelling-houses of the city. Here and there you will find a dim light, because it is the household custom to keep a subdued light burning; but most of the houses from base to top are as dark as though uninhabited. A merciful God has sent forth the archangel of sleep, and he puts his wings over the city. But yonder is a clear light burning, and outside on the window casement is a glass or pitcher containing food for a sick child; the food is set in the fresh air. This is the sixth night that mother has sat up with that sufferer. She has to the last point obeyed the physician's prescription, not giving a drop too much or too little, or a moment too soon or too late. She is very anxious, for she has buried three children with the same disease, and she prays and weeps, each prayer and sob ending with a kiss of the pale cheek. By dint of kindness she gets the little one through the ordeal. After it is all over, the mother is taken down. Brain or nervous fever sets in, and one day she leaves the convalescent child with a mother's blessing, and goes up to join the three in the kingdom of heaven. Life for life. Substitution! The fact is that there are an uncounted number of mothers who, after they have navigated a large family of children through all the diseases of infancy, and got them fairly started up the flowering slope of boyhood and girlhood, have only strength enough left to die. They fade away; some call it consumption! some call it nervous prostration; some call it intermittent or malarial indisposition; but I call it martyrdom of the domestic circle. Life for life. Blood for blood. Substitution!

All good men have for centuries been trying to tell whom this Substitute was like, and every comparison, inspired and uninspired, evangelistic, prophetic, apostolic, and human, falls short, for Christ was the Great Unlike. Adam a type of Christ, because he came directly from God; Noah a type of Christ, because he delivered his own family from the deluge; Melchisedec a type of Christ, because he had no predecessor or successor; Joseph a type of Christ, because he was cast out by his brethren; Moses a type of Christ, because he was a deliverer from bondage; Samson a type of Christ, because of his strength to slay the lions and carry off the iron gates of impossibility; Solomon a type of Christ, in the affluence of his dominion; Jonah a type of Christ, because of the stormy sea in which he threw himself for the rescue of others; but put together Adam and Noah and Melchisedec and Joseph and Moses and Joshua and Samson and Solomon and Jonah, and they would not make a fragment of a Christ, a

quarter of a Christ, the half of a Christ, or the millionth part of a Christ. He forsook a throne and sat down on his own footstool. He came from the top of glory to the bottom of humiliation, and changed a circumference seraphic for a circumference diabolic. Once waited on by angels, now hissed at by brigands. From afar and high up he came down; past meteors swifter than they; by starry thrones, himself more lustrous; past larger worlds to smaller worlds; down stairs of firmaments, and from cloud to cloud, and through tree-tops and into the camel's stall, to thrust his shoulder under our burdens and take the lances of pain through his vitals, and wrapped himself in all the agonies which we deserve for our misdoings, and stood on the splitting decks of a foundering vessel, amid the drenching surf of the sea, and passed midnight on the mountains amid wild beasts of prey, and stood at the point where all earthly and infernal hostilities charged on him at once with their keen sabres —our Substitute!

About thirty-six years ago there went forth from our northern and southern homes hundreds of thousands of men to do battle for their country. All the poetry of war soon vanished, and left them nothing but the terrible prose. They waded knee-deep in mud. They slept in snow-banks. They marched till their out feet tracked the earth. They were swindled out of their honest rations, and lived on meat not fit for a dog. They had jaws all fractured, and eyes extinguished, and limbs shot away. Thousands of them cried for water as they lay dying on the field the night after the battle, and got it not. They were homesick, and received no message from their loved ones. They died in barns, in bushes, in ditches, the buzzards of the summer heat the only attendants on their obsequies. No one but the infinite God who knows everything, knows the ten thousandth part of the length, and breadth, and depth, and height of the anguish of the Northern and Southern battlefields. Why did these fathers leave their children and go to the front, and why did these young men, postponing the marriage day, start out into the probabilities of never coming back? For the country they died. Life for life. Blood for blood. Substitution!

But we need not go so far. What is that monument in Greenwood? It is to the doctors who fell in the Southern epidemics. Why go? Were there not enough sick to be attended in these Northern latitudes? Oh, yes; but the doctor puts a few medical books in his valise, and some phials of medicine, and leaves his patients here in the hands of other physicians, and takes the rail-train. Before he gets to the infected regions he passes crowded rail-trains, regular and extra, taking the flying and afflicted populations. He arrives in a city over which a great horror is brooding. He goes from couch to couch, feeling of the pulse and studying—symptoms, and prescribing day after day, night after night, until a fellow-physician says, "Doctor, you had better go home and rest; you look miserable." But he cannot rest while so many are suffering. On and on, until some morning finds him in a delirium, in which he talks of home, and then rises and says he must go and look after those patients. He is told to lie down; but he fights his attendants until he falls back, and is weaker and weaker, and dies for people with whom he had no kinship, and far away from his own family, and is hastily put away in a stranger's tomb, and only the fifth part of a newspaper line tells us of his sacrifice—his name just mentioned among five. Yet he has touched the furthest height of sublimity in that three weeks of humanitarian service. He goes straight as an arrow to the bosom of him who said: "I was sick and ye visited me." Life for life. Blood for blood. Substitution!

What an exalting principle this which leads one to suffer for another! Nothing so kindles enthusiasm or awakens eloquence, or chimes poetic canto, or moves nations. The principle is the dominant one in our religion—Christ the Martyr, Christ the celestial Hero, Christ the Defender, Christ the Substitute. No new principle, for it was as old as human nature; but now on a grander, wider, higher, deeper and more world-resounding scale! The shepherd boy as a champion for Israel with a sling toppled the giant of Philistine braggadocio in the dust; but here is another David who, for all the armies of churches militant and triumphant, hurls the Goliath of perdition into defeat, the crash of his brazen armor like an explosion at Hell Gate. Abraham had at God's command agreed to sacrifice his son Isaac, and the same God just in time had provided a ram of the thicket as a substitute; but here is another Isaac bound to the altar, and no hand arrests the sharp edges of laceration and death, and the universe shivers and quakes and recoils and groans at the horror.

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The most exciting and overpowering day of one summer was the day I spent on the battlefield of Waterloo. Starting out with the morning train from Brussels, Belgium, we arrived in about an hour on that famous spot. A son of one who was in the battle, and who had heard from his father a thousand times the whole scene recited, accompanied us over the field. There stood the old Hougoumont Chateau, the walls dented, and scratched, and broken, and shattered by grape-shot and cannon-ball. There is the place in which three hundred dying and dead were pitched. There is the chapel with the head of the infant Christ shot off. There are the gates at which, for many hours, English and French armies wrestled. Yonder were the one hundred and sixty guns of the English, and the two hundred and fifty guns of the French. Yonder the Hanoverian Hussars fled for the woods. Yonder was the ravine of Ohain, where the French cavalry, not knowing there was a hollow in the ground, rolled over and down, troop after troop, tumbling into one awful mass of suffering, hoof of kicking horses against brow and breast of captains and colonels and private soldiers, the human and the beastly groan kept up until, the day after, all was shovelled under because of the malodor arising in that hot month of June.

"There," said our guide, "the Highland regiments lay down on their faces waiting for the moment to spring upon the foe. In that orchard twenty-five hundred men were cut to pieces. Here stood Wellington with white lips, and up that knoll rode Marshal Ney on his sixth horse, five having been shot under him. Here the ranks of the French broke, and Marshal Ney, with his boot slashed of a sword, and his hat off, and his face covered with powder and blood, tried to rally his troops as he cried: 'Come and see how a marshal of France dies on the battle-field.' From yonder direction Grouchy was expected for the French re-enforcement, but he came not. Around those woods Blucher was looked for to re-enforce the English, and just in time he came up. Yonder is the field where Napoleon stood, his arm through the reins of a horse's bridle, dazed and insane, trying to go back." Scene from a battle that went on from twenty-five minutes to twelve o'clock, on the eighteenth of June, until four o'clock, when the English seemed defeated, and their commander cried out: "Boys, can you think of giving way? Remember old England!" and the tide turned, and at eight o'clock in the evening the man of destiny, who was called by his troops Old Two Hundred Thousand, turned away with broken heart, and the fate of centuries was decided.

No wonder a great mound has been reared there, hundreds of feet high—a mound at the expense of millions of dollars and many years in rising, and on the top is the great Belgian lion of bronze, and a grand old lion it is. But our great Waterloo was in Palestine. There came a day when all hell rode up, led by Apollyon, and the Captain of our salvation confronted them alone. The Rider on the white horse of the Apocalypse going out against the black horse cavalry of death, and the battalions of the demoniac, and the myrmidons of darkness. From twelve o'clock at noon to three o'clock in the afternoon the greatest battle of the universe went on. Eternal destinies were being decided. All the arrows of hell pierced our Chieftain, and the battle-axes struck him, until brow and cheek and shoulder and hand and foot were incarnadined with oozing life; but he fought on until he gave a final stroke and the commander-in-chief of hell and all his forces fell back in everlasting ruin, and the victory is ours. And on the mound that celebrates the triumph we plant this day two figures, not in bronze or iron or sculptured marble, but two figures of living light, the lion of Judah's tribe and the Lamb that was slain.

Wind-Driven Bicycles.

No less than three attempts to cause the wind to aid the bicycle-rider in driving his machine have recently been made by inventors, one American and two French. In the case of the American and one of the French inventions, the apparatus constructed on the plan of a toy windmill is attached to the machine, and geared to the front wheel in such a manner that the force of the wind can be utilized in turning the wheel. The third contrivance also acts on the principle of the windmill, but its motor, instead of having fans all facing one way, is shaped like an empty pumpkin-shell, with the segments slightly separated and inclined inward. The practical usefulness of these devices remains to be demonstrated.